DOCUMENT RESUME

ED 182 695 CS 005 248

AUTHOR Moe, Alden J.; And Others
TITLE The Literacy Requirements of an Account Clerk on the Job and in a Vocational Training Program.
INSTITUTION Purdue Univ., Lafayette, Ind. Dept. of Education.
SPONS AGENCY Indiana State Dept. of Public Instruction, Indianapolis.; Office of Education (DHEW), Washington, D.C.
PUB DATE Nov 79
NOTE 56p.; For related documents see CS 005 141-142 and CS 005 247-254

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Accounting; *Adult Basic Education; *Adult Education Programs; *Adult Vocational Education; Basic Skills; *Bookkeeping; Clerical Workers; Communication Skills; *Job Skills; *Literacy; Reading Skills; Teaching Methods; Vocabulary
IDENTIFIERS *Job Literacy

ABSTRACT

As part of a project that identified the specific literacy skills required in ten occupations, this report provides two levels of instructional information about account clerks. Factual data are presented in Parts I and II for use in decision making by program developers, administrators, teachers, and counselors. These sections note the specific literacy requirements (reading, writing, listening, speaking, and mathematics) that were identified at three job sites and in three vocational training programs. Part III presents instructional methods/materials that adult basic education teachers can use to develop literacy skills while imparting job related knowledge. The lesson format is based on a directed reading activity and includes vocabulary and concept development, sentence and organizational structure, silent reading, and skill development. Appendixes list the technical vocabulary that account clerks need to know, the 100 words that represent 45% of the language sampled for the entire project, and occupational literacy requirements for the ten occupations that were studied. (AEA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

THE LITERACY REQUIREMENTS OF AN ACCOUNT CLERK ON THE JOB AND IN A VOCATIONAL TRAINING PROGRAM

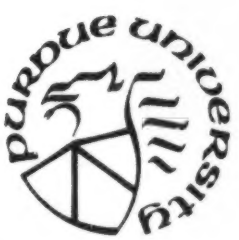
ED182695

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Alden J. Moe
R. Timothy Rush
Rebecca L. Storlie

Department of Education
Purdue University



November 1979

CS805248

This project was completed through grants from the Indiana Department of Public Instruction under Section 309 of the Adult Education Act, P.L. 91-230 and Sections 310 of the Adult Education Act, P.L. 91-230 as amended. The data collection and initial completion of the literacy reports (from which this report was derived) was completed during 1978-79 under Project Number FY-79-8062-P. This report, one of ten, was revised for dissemination during 1979-80 under Project Number FY-80-8075-T.

* * *

The activity which is the subject of this report was supported in part by the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

Acknowledgements

In order to conduct this project, the cooperation of approximately 100 individuals in the Greater Lafayette, Indiana, area was required. A grateful acknowledgement is extended to those many individual workers, students, instructors, program directors, union officials, personnel directors, foremen, supervisors, and others who allowed us to work with them and to identify the literacy demands discussed in this report.

The guidance and support of Linda Zeiler and Timothy Wells of the Division of Adult and Community Education of the Indiana State Department of Public Instruction is also gratefully acknowledged.

The editorial expertise provided by Robert Hieb is much appreciated. Finally, many thanks to Shelly Richardson and Ricki Freiman for their secretarial assistance.

Alden J. Moe
Project Director
Purdue University
West Lafayette, IN

TABLE OF CONTENTS

PROJECT ABSTRACT		1
INTRODUCTION		2
PART I	REQUIREMENTS ON THE JOB	5
	Job Sites Studied	5
	Reading Requirements	6
	Special Reading Considerations and Problems	7
	Uses of Reading	8
	Writing Requirements	8
	Mathematics Requirements	9
	Oral Language Requirements	10
	Key Non-literacy Requirements	11
PART II	REQUIREMENTS OF THE VOCATIONAL TRAINING PROGRAM	12
	Courses Studied	12
	Reading Requirements	12
	Special Reading Considerations and Problems	14
	Uses of Reading	14
	Writing Requirements	15
	Mathematics Requirements	15
	Oral Language Requirements	16

PART III	INSTRUCTIONAL RECOMMENDATIONS	17
	Project Overview	17
	Organization of ABE Lessons	19
	Notes on Teaching Vocabulary	20
	Notes on Teaching About the Structure and Organization of Text	21
	Directed Reading Activity	23
	Reading to Accomplish Work	25
	Reading to Learn Information	27
	Counseling the ABE Student	27
	Summary	28
BIBLIOGRAPHY		31
APPENDIX A	KEY TECHNICAL VOCABULARY	32
APPENDIX B	HIGHEST FREQUENCY WORD LIST	47
APPENDIX C	SUMMARY OF OCCUPATIONAL REQUIREMENTS	49

PROJECT ABSTRACT

THE IDENTIFICATION OF LITERACY REQUIREMENTS OF JOBS IN INDUSTRY AND CORRESPONDING VOCATIONAL TRAINING PROGRAMS

1.	Need Addressed:	Meeting the educational needs of adults with minimal literacy skills who wish to enter skilled or semi-skilled occupations.
2.	Population Served:	Adults with minimal literacy skills.
3.	Brief Description:	Specific literacy requirements (reading, writing, listening, speaking, and mathematics) of semi-skilled and skilled occupations in business, industry and vocational training programs were determined. The literacy demands of three work contexts and training programs for each of the ten occupations were analyzed and reported.
4.	Major Objectives:	To provide educators, counselors, and administrators with a description of the literacy requirements of semi-skilled and skilled occupations and training programs to which functionally illiterate adults aspire.
5.	Products:	A description of the literacy requirements necessary to hold a job in each of ten occupations and the corresponding requirements necessary to succeed in vocational training programs which prepare individuals for each of those occupations is provided. A booklet for each of the ten jobs was prepared.

INTRODUCTION

This project was undertaken in response to a need, expressed by adult basic educators and counselors, for information about the specific literacy skills necessary for success in several occupations. The occupations studied had been identified as desirable careers during informal interviews with adults who were enrolled in basic education programs in the Lafayette, Indiana area. Employment counselors and officials of the Office of Career Development confirmed that the occupations identified for study were appropriate. Because Greater Lafayette offers a wide range of occupational and training opportunities, the project staff was able to study both job sites and vocational training sites for each of the following occupations: account clerk, automotive mechanic, draftsman, electrician, heating and air conditioning mechanic, industrial maintenance mechanic, licensed practical nurse, machine tool operator, secretary, and welder.

Purpose and Audience

This report provides descriptive and instructional information to adult educators at two levels. Factual data are presented in Parts I and II for use in decision making by program developers, administrators, lead teachers, and counselors. Part III presents instructional methods and materials and is meant for use by adult basic education teachers. Members of both groups may be interested in the entire report, but in preparing it the project staff attempted to address the needs of the two audiences separately.

Procedures

To identify reading, writing, speaking, listening, mathematics, and other characteristics which are necessary for success both on the job and in the training program, three job sites and three vocational college courses were studied.

Required reading materials from each of the six settings were evaluated using two widely used readability formulas, the Dale-Chall Formula and the Fry Readability Graph. Readability estimates were computer assisted. A minimum 2000 word sample of written language was taken from each site. Special considerations and problems related to reading the technical materials were identified, and the relative use of reading as a work tool and as a learning tool was determined.

To identify speaking and listening requirements, one hour samples of oral language were recorded at each job site and in each vocational college course. Language recorded at each site was rated for its technical and formal qualities, and computer-analyzed to assess vocabulary and syntax. Written and oral language samples were used to develop the Key Technical Vocabulary List found in Appendix A. The combined language samples from all occupations studied were used to develop the Highest Frequency Word List found in Appendix B. A summary of the literacy requirements for all ten occupations studied is found in Appendix C.

Writing samples were obtained at each of the six sites and used to determine the nature of written communication demands on the job and in the vocational training program.

Mathematics demands were determined through surveys of materials from the job sites and classrooms. Instructors and supervisors

responded to a questionnaire about the specific mathematics skills necessary for job and/or training program success.

Important non-literacy characteristics were identified by supervisors who completed a rating scale which asked for their estimate of the importance to job success of such factors as cooperativeness, reliability, and attitude toward work.

The following sections of this report are organized according to the requirements of the job, the requirements of the training program, and instructional recommendations.

PART I

REQUIREMENTS ON THE JOB

Job Sites Studied

At each of three separate job sites, the literacy demands placed on one successful account clerk were studied. Reading, writing, oral language, and mathematics were the specific literacy skill areas examined. Account clerks from two large industrial firms and from the chief accountant's office of a major university cooperated in the study. From each job site, samples of the reading, writing, and mathematics tasks done on the job were obtained. Samples of the oral language requirements of the jobs were obtained by tape recording a randomly chosen one-hour period of verbal interaction. At each job site, the account clerk's immediate supervisor completed a questionnaire which was concerned with the importance of thirteen worker characteristics. Supervisors were also asked to identify the mathematics skills necessary for job success and to estimate the amount of time per week that account clerks spent on mathematics-related work.

Reading Requirements

Strong reading skills are an important aspect of accounting work; however, supervisor estimates of the amount of on-the-job time involving reading indicated that a maximum of 25% of an account clerk's time is devoted solely to reading. This is due to the fact that reading is used mainly to complete math-related tasks.

Job site materials included correspondence, ledgers, price lists, and tabled information. The styles of writing used in the various materials were largely formal, although memoranda were written in both informal and formal styles. Technical language related to products and services was used. Each account clerk was required to read letters and instructions such as the excerpts shown in Example I.

EXAMPLE I

Account Clerk Reading Materials

A. Please use this letter as authorization to deduct an additional 8% from the following invoices: 627401, 64008L, 62739L, and 61739L. Please let me know if you receive any further invoices on our products that do not carry the extra 8% discount.

B. Check paid invoice file.
Check completed purchase order.
Go back to original receiving record.
Check current invoice file.

Through computer analysis, it was determined that the difficulty of the examined job site materials was consistently very high. The readability estimate shown below is the result of two readability formulas, the Dale-Chall Formula and the Fry Readability Graph. One

estimate is given to summarize the three job sites.

Readability Estimate for Job Site Reading Materials:

College to College Graduate Level

Frequent task repetition and familiarity with specialized technical vocabulary and writing styles found in the accounting reading materials may offset the apparent difficulty of on-the-job reading requirements. Specialized vocabulary occurring frequently in job-related reading materials included words such as invoice, voucher, payroll, and vendor.

Special Reading-Related Problems and Considerations

An important reading requirement of the jobs studied involved obtaining information from lists, tables, or charts. The table shown in Example II utilized headed columns which separated and organized important information. The sentence structure in such tables tended to be abbreviated, often to one word.

EXAMPLE II

Table Used On The Job Site

DAILY REPORT OF GOODS RECEIVED

CK	Quantity	ARTICLES	CONSIGNOR	PROD. NO.	Railroad or Express Company	WEIGHT
	3	#26 CT Drill	Shank's		UPS	7#
	4	#24				
	7	11/32				
	12	1/4				
	36	K-24 Plug Tap				
	12	#23 SL Drill				
	1	406-03054-0000 Bottom Guard	K. J. Golm			
	1	3115B Rod Plate				
	1	32525 Bearing				

Use Of Reading On The Job

Each account clerk who participated in the project completed questionnaires concerning the use of reading in three separate job-related tasks. The questionnaire results showed that reading is used predominately as a tool for accomplishing work. That is, in most situations the content of what was read"needed not be"remembered for more than several minutes. When a task requiring reading was done on a daily basis, account clerks frequently reread rather than remembered the key information. In this way precision in accomplishing tasks was maintained because memory-related errors were avoided.

Reading to accomplish work was almost always connected to daily mathematics tasks. In working with numbers, lapses of memory or careless reading could cost the employee or other employees hours of lost time in interpretation. An example might be an error in recording a coding digit. Overall, close attention to reading and to mathematics tasks was necessary for an account clerk to accomplish work efficiently.

Writing Requirements

The ability to communicate through both informal and formal grammatical written language was required at each of the job sites studied. Writing typically involved filling in blanks or check lists or entering key words or numbers on ledger sheets. Occasional formal correspondence was required in the form of business memoranda; however, generally very little emphasis was placed on writing ability.

Mathematics Requirements

Supervisors of the participating account clerks rated the importance of a subset of mathematics skills which included the basic whole number processes of addition, subtraction, multiplication, and division, and processes involving fractions, measurement, word problems, geometry, and algebra. All supervisors stated that accuracy in addition, subtraction, multiplication, and division of whole numbers and decimal fractions was required. The ability to use a calculator or adding machine was required at all of the job sites. Account clerks spent 75 to 100% of their time on mathematics tasks. The mathematics skills required of the account clerks were not all sophisticated, but the required skills were used constantly. Accuracy in these tasks was essential.

Oral Language Requirements

The use of oral language by account clerks ranged from informal conversation with fellow employees to formal technical interactions with co-workers, supervisors and, occasionally, in phone conversations with business contacts. Example III presents excerpts from typical office interactions.

EXAMPLE III

A. Informal Job Site Language

"Again our little numbering machine is skipping. Instead of going from three nine nine nine it went back to three thousand. Today's runs are all misnumbered."

B. Technical Interaction On the Job

"I think the credit is more than the debit would be. We would end up not writing a check because we would get a debt from them for thirty-three eighty-four for two of these. We paid them because they gave us past due notices on them and Johns Manville finally put them through."

The account clerk's interaction with other industries or businesses was essentially very limited and was generally accomplished through official written correspondence.

Listening to and following verbal directions was rated by the supervisors and the account clerks themselves as an important aspect of oral language at the three job sites. These verbal directions frequently pertained to procedures employed in the account clerk's day-to-day jobs. Example IV presents brief examples in which an account clerk is given directions and is questioned by a supervisor.

EXAMPLE IV

Job Site Oral Directions

A. "File it until you get the purchase order."

B. "You're not holding the credit for Jones are you? In your file there. Thirteen hundred."

In summation, both the speaking and listening aspects of an account clerk's job require reasonably high levels of competency.

Key Non-Literacy Requirements

Supervisor rating of requirements important to job success brought out the following non-literacy characteristics: cooperation, job knowledge, and attitude. Each of these characteristics was rated as more important than reading abilities and equal in importance to mathematics abilities.

PART II

REQUIREMENTS OF THE VOCATIONAL TRAINING PROGRAM

Courses Studied

The reading, writing, oral language, and mathematics requirements of three courses in a post-secondary vocational accounting training program were studied. The courses Business Math, Business Law, and Accounting Principles, had been determined by their instructors and the school administration to be representative of the training program as a whole. The literacy demands placed on students in other accounting courses were approximately the same as those presented here.

Practical experience was included in each course studied. A majority of class assignments contained hypothetical situations similar to those account clerks would normally encounter on the job. Class exercises such as these can reduce the apparent literacy demands of the training program.

Reading Requirements

Reading materials including textbooks, workbooks, and examinations were studied and rated according to the style in which they were written. The rating scale included informal, formal, literary,

and technical levels. The materials surveyed in the accounting training program were found to be written in formal or technical styles such as those illustrated in Example V.

EXAMPLE V

Formal and Technical Writing Styles

A. "Payables are, of course, the opposite of receivables; they are debts owed by an enterprise to its creditors. Money claims against a firm may originate in numerous ways, such as purchases of merchandise or services on a credit basis, loans from banks, purchases of equipment, and purchases of marketable securities." (Niswonger and Fess, 1977, p. 163)

B. "The technique of vertical analysis can also be applied with comparative statements. The percentage that each item is of net sales for the current period is compared with the corresponding percentage for the preceding period." (Giordano and Maxwell, 1977, p. 163)

The level of difficulty of the reading materials required in the courses studied was determined by computer analysis using two widely acceptable readability formulas. The Dale-Chall Formula and the Fry Readability Graph provided estimates of the general level of reading ability required for comprehension of the materials. Because the estimates of the two formulas were not identical, the estimates of readability for the three courses are presented as ranges of difficulty below. Course one used a text outlining the

principles of business law while courses two and three used texts with primarily a mathematics base.

READABILITY ESTIMATES

Course One	12th grade to college level
Course Two	College level to college graduate level
Course Three	11th grade to college graduate level

Readability estimates do not account for factors such as knowledge of a specialized vocabulary or reader motivation. Such factors can affect reader success in mastering difficult material.

Special Considerations and Problems

The written materials used in two of the three courses made extensive use of tables, graphs, and examples of math problems often used in accounting tasks. Example VI illustrates the use of tables and mathematics problems.

EXAMPLE VI

Use of Tables and Sample Mathematics Problems

July	1	Paid accrued interest--3 months	$ (625)
Oct.	1	Received interest payment--6 months	1,250
Dec.	31	Recorded accrued interest--3 months	625
	31	Recorded amortization of discount--6 months	274
		Interest earned--6 months	$1,524

(Niswonger and Fess, 1977, p. 477)

Uses of Reading

In the accounting training program reading was used both as a tool for accomplishing work and as a learning tool. Classroom ex-

ercises resembling job tasks were done on a daily basis. For example, when word problems were used to figure debits or interest, reading to do was used. When studying was required, reading to learn was necessary. Though precision is important in both uses of reading, special preparation and organization play a key role in learning and remembering through reading. Instructional strategies and techniques related to reading as both a work tool and a learning tool are presented in Part III of this report.

Writing Requirements

Many of the tasks required in the accounting training program required the ability to communicate in writing. Questions following textbook chapters required students to respond in complete sentences or to fill in blanks with appropriate vocabulary words. Tasks such as these are relevant to instruction but appear to have little resemblance to job tasks.

Mathematics Requirements

The basic arithmetic processes of addition, subtraction, multiplication, and division were seen as requirements by accounting instructors, as were higher level mathematics skills such as manipulation of fractions, use of the decimal system, and some understanding of algebra. The ability to use a calculator was desirable, although the instructors appeared to place more importance on the ability of students to perform the procedures. Much of the instruction was devoted to finding solutions to word problems typical of on-the-job tasks. It should be stressed that in all levels of mathematics skills

accuracy was considered necessary. Time devoted to mathematics work outside of the classroom was stated to surpass time devoted to reading tasks, although one instructor emphasized the fact that reading skills were necessary to complete most mathematics tasks.

Oral Language Requirements

Within the classroom both formal and informal English were used. All of the cooperating instructors made use of questioning techniques designed to elicit student responses to on-the-job situations. An example of this type of questioning is included in Example VII.

EXAMPLE VII

Classroom Oral Language

Instructor: "You're prepaying your interest. Suppose you paid it off after a month, how much interest would you have?"

Instructors frequently employed a blackboard or overhead projector to clarify concepts with which the students had difficulty. As a result, listening and note taking were important skills for students in the training program.

The use of formal, technical, and informal styles of English in the training program was similar to that found at the job sites studied. The ability to follow oral directions was related directly to on-the-job tasks.

PART III

INSTRUCTIONAL RECOMMENDATIONS

Project Overview

High levels of reading, oral language, and mathematics skills were required for account clerk positions and also in the vocational training program.

The levels of reading skills required on the job were estimated to be in the range of college level to college graduate level. It was noted, however, that knowledge of key technical vocabulary combined with familiarity of material may reduce the perceived difficulty of reading tasks.

On the job and in the training program reading was used as a tool for accomplishing work and also as a tool for learning. Reading to do was predominant on the job where reading was often used to complete common mathematics tasks. Supervisors' estimates of the amount of time account clerks devoted to job-related reading were a maximum of ten hours per week. The supervisors indicated, however, that reading and mathematics tasks were often interdependent.

In the vocational training program, reading was obviously used as a learning tool more frequently than it was on the job. However,

reading-to-do tasks, which were similar to those on the job, also occurred frequently.

Writing requirements for the three account clerks were generally limited to ledger sheet entries, forms containing fill-in blanks, and occasional memoranda. The writing requirements of the training program, however, included more frequent sentence and paragraph construction.

Proficiency in a variety of mathematics skills was required by both the job and training programs examined. Basic arithmetic skills were used most frequently; desirable skills ranged through higher level algebra. Use of calculators and adding machines was required at the job sites. The amount of time spent on mathematics-related tasks both on the job and in the training program was far greater than the amount of time spent on reading tasks.

The oral language used on the job and in the training program required the ability to make use of real instructions given by supervisors and instructors. The ability to relate verbal information to mathematics tasks was necessary.

Job site supervisors rated the following as very important to job success: cooperation, job knowledge, attitude, and ability to follow spoken directions. All of these qualities were rated as more important than reading skills and equal in importance to mathematics abilities.

A brief summary of how the literacy requirements of the account clerk compare to those of the other nine occupations studied is provided in Appendix C.

Organization of ABE Lessons

The recommendations which follow are meant to aid teachers and tutors in designing streamlined lessons which develop literacy skills while imparting job-related knowledge. The majority of the literacy information studied in connection with accounting occupations and training programs was related to reading. Reading demands were found to be high; when mathematics skills were used by workers and students, they were often used in conjunction with reading. This section, therefore, presents background information and a method of organizing ABE lessons which emphasizes reading. Background information provided deals with the teaching of vocabulary and teaching about text structure and organization. The lesson format is based on a directed reading activity (DRA) and includes vocabulary and concept development, sentence and organizational structure, silent reading, and skill development.

The guiding principle of a DRA method of lesson organization is that words, concepts, and skills must be introduced and practiced in situations and materials that are true to life. Words, sentences, tables, and illustrations should be similar to those used on the job or in the training program. It may be possible to teach an interested ABE student the words on the Key Technical Vocabulary List in isolation, but it is a far better practice to introduce and practice such words in contexts similar to those found in occupational reading materials.

The value of a DRA approach is that it allows the use of any appropriate reading material in a job-related reading development program.

Notes on Teaching Vocabulary

The specialized vocabularies of account clerks are largely similar but can be determined by the specific position the clerk holds within a corporation. There are, however, many key words and concepts which are common to the account clerk occupation in general.

The specialized technical words of the Key Technical Vocabulary List should be taught to ABE students interested in the occupations of account clerk so that both the words and their meanings are recognized. Care should be taken that the words are taught in a meaningful context.

It is important for ABE students to be introduced to common high-frequency words and specialized vocabulary words via contexts which are similar to those found on the job and in the training program. As noted previously, this practice develops both basic job-related knowledge and reading ability.

The following are suggestions for teaching vocabulary.

1. Pair the word to be taught with the concept or object that it refers to whenever possible.
2. Introduce the word using an approach which focuses student attention on the word.
3. Be sure that the new word is read in context very soon after it has been taught.
4. If in doubt, use the general rule that four to six new words per lesson be introduced. Learning and recall are typically most efficient when the number of words taught is within this range.
5. Review vocabulary words often.

Sources of job-related vocabulary words and concepts are included in the books cited in the bibliography of this report. The style and level of writing in the listed materials is often highly technical, thus, if possible, teacher time could be devoted to preparing less difficult materials which parallel high-level passages.

Notes on Teaching About the Structure and Organization of Text

The above suggestions on teaching vocabulary words emphasize meaning; words have little use outside of a meaningful context. In accounting even solitary words on a table or list have a meaningful context to a trained individual.

In reading it is important to be aware of special patterns of organization used by writers. Formal technical reading materials are organized differently from the short stories and novels often used in teaching reading to Americans. The expository style of writing used in textbooks and other specialized or technical materials is different from the narrative style of stories and novels at several levels of comparison.

At the sentence level, ABE students should learn that expository style often relates cause and effect. Sometimes this relationship is clearly stated, as in the sentence in Example IX-A. Often, however, the relationship is not stated, as in Example IX-B. In such cases, readers who are not expecting cause and effect connections may miss them.

EXAMPLE IX

Stated and Unstated Cause and Effect Relationship

A. The bank failed because of poor management.

B. The bank was poorly managed. It failed.

At the paragraph level, writers of expository material often use a format which states the main idea in the first sentence. The last sentence summarizes the paragraph and may connect it to a paragraph that follows. Comprehension and learning can be improved when readers are aware of this organizational technique.

At the chapter level, expository material may contain many valuable aids to efficient reading. Key words are used as headings which introduce important sections. Pictures, diagrams, tables, and figures are used to illustrate important ideas. Introductions and chapter summaries are also available as aids to readers who know how to use them.

ABE students should learn about style factors such as these and use them to improve comprehension. Efficient readers use their knowledge of expository style to organize their reading. Awareness of the use of cause and effect makes them sensitive to such relationships. Knowledge of paragraph and chapter organization is used to develop a 'mind set' which is helpful in organizing and remembering important information. Reader-composed questions based on paragraph lead-sentences, headings, pictures, and other graphic aids help readers organize, comprehend, and remember what is read.

A directed reading activity, described in the next section, is a system which enables the ABE student to become efficient in using organizational factors as aids to comprehension and memory.

Directed Reading Activity

This system of preparing for efficient reading may be used with individual students or with groups. In groups, it requires very little class time to prepare students for reading assignments. For both individual and group use, it has been demonstrated to increase reading efficiency and comprehension.

After a review of previously taught, related concepts and assignments, the below procedures should be followed:

I. Develop Readiness for Reading the Assignment.

Purpose: Motivate
Set purposes for reading
Develop vocabulary

Teacher role: Ask Questions -

How familiar is the subject matter and vocabulary to your student?

Teach New Vocabulary -

Be concrete: write out the words as you introduce them. Use examples, such as objects or pictures, point out word relationships (i.e., cardiograph and cardiovascular relate to cardiac - heart). Have students write the words as they are taught.

Ask Questions to Stimulate Interest -

Focus on titles, pictures, graphs. Relate an anecdote from your own experience or one your students might have had.

II. Direct the Silent Reading of the Assignment.

Develop questions from sub-headings, graphs, pictures, and tables. Try to focus on relationships in the assignment. (In textbooks, useful questions are often provided by the authors).

Have pupils read silently from 5 to 20 minutes to find the answers keeping questions in mind as they read.

Encourage students to ask for help when they are confused. Writing questions down in abbreviated form is a good practice when reading is done outside of class.

III. Discuss Student Answers to Questions

Do not restate the questions unless necessary. Students need to remember the questions or they lose the purpose for reading.

Ask higher level questions to develop comprehension. Have student(s) interpret, draw conclusions, and make inferences as well as recall facts.

IV. Reread as Necessary

When answers demonstrate confusion, have the student reread the appropriate small section to determine the reason for the confusion.

V. Follow-up and Skill Development

Confusion or lack of comprehension may signal a need for extra work on vocabulary, concept building, or word recognition skill.

In this phase of the lesson important mathematics skills and other job-related skills can be related concretely to the reading assignment.

REMEMBER:

> The DRA is a system, a routine, that you want your student(s) to learn to use independently. Remind your students of this - tell them why you use a DRA system. It will help them now and in their future study.

Reading to Accomplish Work

The term, reading to do, has been used in research and development projects done for the U.S. armed forces (Sticht, et. al., 1977). Reading to do refers to the use of reading for the purpose of getting work done. It involves following written directions and reading to find information which will be used immediately. Such information need not be learned or remembered. Looking up telephone numbers; finding information in a policy manual; or finding important data in a table, chart, or figure are examples of reading to do. Preparation of ABE students for reading-to-do tasks can be incorporated in a directed reading activity lesson.

When lesson materials contain occupationally relevant concepts, ABE students are given important background information which will make higher level training easier. Therefore, lessons should employ materials which are similar in structure and content to those found on the job or in the vocational training program. Paragraphs, tables, charts, and figures might be used verbatim from on-the-job or instructional materials. Alternatively, such materials might be paraphrased and reduced in difficulty to match student abilities if teacher time permits.

Given appropriate materials and a period of orientation to them,

the structural and organizational features of the table, chart, figure, paragraph, or chapter, should be pointed out to the student (see Notes on Teaching About Structure and Organization of Text). This is essentially the first step of the DRA described above. When the materials have been introduced, the student should be directed to find a particular fact in the material. In subsequent lessons, the difficulty of information-finding tasks should be discussed.

Skill in following written directions can be developed using a DRA system and materials similar to Example X. Initial activities should contain only one or two steps to follow.

EXAMPLE X

Written Directions

1. Listen to the directions on the Presentation Tape and execute those directions in Book I.
2. Do the Supplementary exercises for that lesson in Book II.
3. Complete the Self-Check for that lesson.
4. Take the information from the Dictation Tape for that lesson, reading back portions of it from your notes.

In information-finding lessons, the emphasis should be on understanding and careful identification of the required fact. Likewise, in lessons on following directions, understanding and careful execution of the required steps must be emphasized.

Reading to Learn Information

Skill in learning printed information for future use is very important in vocational training programs. The reading skills necessary for reading to learn (Sticht, et. al., 1977) are taught and systematically practiced in directed reading activity lessons. That is, the use of previewing, attention to graphic and contextual information, and the organizational factors discussed in Notes on Teaching About the Structure and Organization of Text, above, should be practiced and learned during each DRA lesson. Questioning and rereading, also aspects of the DRA, reinforce important learning skills.

Sources of materials for use in reading-to-learn lessons, as those employed in reading-to-do lessons, should be occupationally oriented (See Bibliography).

Counseling the ABE Student

ABE students should be made aware of the importance of cooperation, job knowledge, attitude toward work, and ability to follow spoken directions, all of them mentioned in previous sections of this report. It appears that supervisors feel that such characteristics contribute as much, or more, to the job of account clerk than do mathematics or reading skills.

The literacy demands of the account clerk jobs and training program courses in accounting were high. It is, therefore, important that teachers, counselors, and tutors consider both the facts presented earlier in this report and also the individual students'

levels of motivation and literacy skill development before beginning to prepare the student to enter an accounting job or vocational training program. Frequency and intensity of lessons, choice of instructional materials, and duration of the instructional program will vary according to the students' skill levels in mathematics and reading. This does not mean that students with low level literacy skills should always be discouraged from preparing for a career in an area of accounting. It does suggest, however, that an early and realistic estimate be made of the time and effort involved to reach an occupational goal.

Summary

The literacy demands of account clerk jobs and training program courses were found to be stringent. It is probable that individual experience and familiarity with specialized information reduces the perceived demands of job and training program tasks. The extent of such a reduction, however, is unknown.

It was observed that the account clerk vocational training program provided students with experiences that were very similar to on-the-job tasks. Reading materials from the training program presented important basic occupational concepts through texts which were less difficult or of the same difficulty as materials found at the job site. Reading tasks were usually directly related to mathematics tasks.

Strong mathematics skills were essential for completing both on-the-job and training program tasks. Basic arithmetic skills were implemented frequently, but knowledge of higher level mathe-

matics skills was desirable for both the jobs and the training program courses. Accuracy in mathematics-related tasks was critical.

Instructional recommendations emphasized the development of reading skills. The recommended approach to ABE reading instruction was a directed reading activity (DRA) because it is systematic, provides for essential skill development and practice, and permits the use of any appropriate reading material. Suggestions were presented for teaching vocabulary and on the use of important structural and organizational factors which are related to reading comprehension and memory.

Two uses of reading, reading to do and reading to learn, were discussed separately because the skills they require are distinct. Reading to do requires the ability to find information for immediate use; long-term memory is not necessary. Reading to learn requires awareness of organizational factors which aid in learning and remembering.

Non-literacy factors were emphasized in the section, Counseling the ABE Student, because on-the-job supervisors rated several factors as equal in importance to mathematics ability and as more important than reading ability despite the high literacy demands for the position of account clerk.

Finally, it was suggested that in implementing the information and recommendations presented in the report, ABE personnel should acquaint themselves with the occupational interest and motivation of their students, as well as their literacy skills. The literacy demands of account clerk positions and training programs are such

that students whose skills are well below those required may be unable to achieve sufficient skills within a reasonable period of time.

BIBLIOGRAPHY

Occupationally-Related Materials

Corley, R. N. and W. J. Robert. Fundamentals of Business Law, 2nd ed. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Corley, R. N. and W. J. Robert. Fundamentals of Business Law, Study Guide, 2nd ed. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Giordano, A. and G. W. Maxwell. College Business Mathematics. Englewood Cliffs, New Jersey: Prentice-Hall, 1977.

Niswonger, C. R. and P. E. Fess. Accounting Principles. 12th ed. Cincinnati, Ohio: South Western Publishing Company, 1977.

ABE Teacher References

Bowren, F. R. and M. V. Zintz. Teaching Reading in Adult Basic Education. Dubuque, Iowa: Wm. C. Brown Publishers, 1977.

Duffy, T. M. "Literacy Research in the Navy". In Sticht, T. G. and D. W. Zaph (Eds.), Reading and Readability Research in the Armed Services. (HumRRO FR-WD-CA-76-4). Alexandria, Virginia: Human Relations Research Organization, 1976.

Harris, A. J. and E. R. Sipay. How to Teach Reading. New York: Longman Inc., 1979.

Kucera, Henry and W. Nelson Francis. Computation Analysis of Present Day American English. Providence, Rhode Island: Brown University Press, 1967.

Ransom, G. A. Preparing to Teach Reading. Boston: Little, Brown and Company, 1978.

Rauch, Sidney J. (ed.). Handbook for the Volunteer Tutor. Newark, Delaware: International Reading Association, 1969.

Sticht, T. G. (ed.) Reading for Working: A Functional Literacy Anthology, Alexandria, Va., Human Relations Research Organization, 1975.

Sticht, T. G.; Fox, L. C.; Hauke, R. N.; and D. W. Zaph, The Role of Reading in the Navy, Alexandria, Va., Human Relations Research Organization, 1977.

APPENDIX A
TECHNICAL VOCABULARY LIST

This list is based on the total oral and written samples of the language of account clerks both on the job and in the training program. Words included in the most frequent 1000 words of the Kucera-Francis list (based on adult language) have been deleted. The list was also edited to remove numerals; labels; names of people, places, products, and companies; contractions and possessives; and colloquialisms resulting from the oral language samples.

Some words included in the list are relatively uncommon words that occured in the total language sample and are not necessarily technical terms. Thus, the list should be treated as a source rather than a criterion. The 92 most common words have been marked with an asterisk.

Total Sample Words = 20,055

Different Words = 2,981

ability	acquired	affecting	amendments	arise
abrogate	acquisition	affiliated	amortized	arising
absence	acted	affirmative	amounts	arithmetic
academic	actions	afford	ample	arrangement
accept	actors	afraid	analyze	arrive
acceptance	acts	agencies	analyzing	arriving
accepted	actual*	agency	animal	article
accepting	ad	agent	annual*	articles
accepts	add*	agree	annually	artificial
accident	addends	agreements	annuity	asking
accidents	adding	agrees	answers	assembly
accommodate	adds	aids	anyway	assessed
accommodating	adequate	airport	apart	asset
accompanies	adjust	aliens	apparent	assets*
accomplish	adjusted	allegation	appearing	assigned
accord	administer	allocate	appliances	assignment
accordance	admission	allocation	applicable	assigns
accountant*	adopted	allow	application*	assistance
accounting*	adult	allowable	applies	assistant
accounts*	advance	allowance	apply	assisting
accrual	advances	allowed	appointment	assists
accrued	advantage	allows	appreciable	associate
accumulate	advantageous	alternative	appropriate*	associated
accurately	advantages	aluminum	approval	assume
achieve	advertising	alumni	approved	assumes
achievement	advisable	amended	arbitrary	assuming
acknowledge	affect	amendment	arguments	athletic

attach
attached
attachment
attempted
attorneys
attracting
attractive
attributable
audit
auditing
auditor
audits
authority
authorized
automobile
auxiliary
avoid
avoids
aware
background
backing
bailed
bailee
bailment
bailor
balance*
balances
bank*
banks
bargaining
bargains
base
basically
battery
beat
beats
becomes
beg
begin
behalf
beneficiary
benefit
benefited
benefitting
benefits
benzine
beverages
bias
biggest
bilateral
billed
billing
billings
binary
binding
bit
biweekly
bolts
bonds
books
border
borrow
borrowed
borrower
borrowing
boss
bottle
bottles
bought
bound
boundaries
bowl
box
braces
brackets
breach
break
breakdown
briefly
bringing
brings
broad
broken
browning
bubble
bucks
budget
budgeted
bunch
bursar
bursars
busiest
businesses*
businessman
buy
buyer
buying
bylaws
cabin
cable
calculate
calculated
calculating
calculation
calculator
calendar
calling
calls
camp
camps
campus
campuses
canceled
cancellation
cancelled
capabilities
capacities
capacity
capital*
card
cards
carefully
carload
carry
carrying
cartons
cash*
catalogue
catch
caught
caused
cemetary
cemetery
centralize
cents

certificate
challenge
changed
changing
chapter
chapters
characteristic
chargeable
charged
charges
charitable
charter
check*
checking
checks*
cheat
chew
chuck
churches
circular
circulars
circumstance
cited
citizen
citizens
civic
civil
claim
claimed
claims
clarification
classification
classified
clause
clean
cleaning
cleared
clearing
clears
clerk
clinic
closely
closing
clubs
code
coded
codes
coding
coffee
coin
coins
cola
collect
collectable
collected
collection
cologne
column
columns
combination
combined
combining
commerce
commercial
commission
commodities
commonly
communicate
companies
comparable
comparative
compared
comparison
compelled
compensation
competent
complement
completed
compliance
complicate
complies
comply
compounded
comprehension
comptroller
computation
compute
computed
computer
computers
computes*
computing
combination
concentrate
concept
concepts
concern
concerning
conclusion
conclusive
condition
conduct
conducted
confidential
confined
conflict
conform
confuse
consent
considerable
considerate
considering
considers
consist
consistent
consists
consolidate
constantly
constitution
constructor
construed
consumed
consumer
contact
contacts
contained
contains
contemplate
continuating
continues
continuity
continuous
contract*
contractor
contracts

contractual
contribute
contribution
controlled
controlling
controls
convention
convents
conversation
convert
converts
conveyed
convicted
copies
copy
cord
corporate*
corporation*
correction
corrects
correspond
council
counsel
count
counters
counts
courses
courts
cover
covers
coworkers
create
created
creates
creating
creation
credit*
credited
crediting
creditor
creditors
criteria
criticism
crop
crucial
crude
cummulative
currency
curtains
custom
customary
customer
customers
damage
damages
date*
dates
daughter
dear
debit
debited
debt
debtor
debts*
December
decimal
decisions
decrease
decreased
decreases
deduct
deducted
deductible
deducting
deduction
deductions
deemed
deer
defect
defective
defects
defined
definite
definition
delay
delayed
delays
delegation
delinquent
deliver
delivery
demand
demanded
denomination
denominator
deny
depend
dependent
depending
depends
deposit
deposited
depositor
deposits
depreciating*
depreciation*
deprive
derived
describes
description
designated
desired
desk
desperate
detail
details
deter
determination
determines
determining
devoted
diamond
dictate
died
dies
differential
difficulty
digits
diligence
dinner
dire
directed
directors

disabilities	dividends	educational	enforceable	essentially
disability	dividing	affecting	engage	establish
disagreement	divisor	efficiently	engaged	establishing
disastrous	doctrine	eight*	engaging	establishment
disbursement	document	eighteen	enhanced	estate
disclaim	documents	eighty	enjoyed	estimated
discount	dollar	elect	enriched	estimates
discovered	dollars*	election	enrolled	etc.
discriminate	donor	electronic	enter	evenly
discuss	donors	eleven	entered	event
discussed	double	eligible	entering	events
discussing	dozen	eliminate	enterprise	everybody
discussion	draft	emerge	enters	evidenced
diseases	drawers	empaneled	entertain	evident
disposal	drawings	employed	entirely	exam
disposing	drawn	employee	entities	examination
dissolution	draws	employees*	entitle	examine
dissolved	dues	employers	entitled	examples
dissolves	duplicate	employs	entity	exceed
dissolving	duration	enable	entries	exceeded
distinct	duties	enact	entry	exceeds
distinguish	duty	encumbered	equal	exception
distribute	earn	encumbrance	equally	exceptions
distributing	earning	ended	equals	excess
divest	earnings	ending	equity	exchange
divide	ease	ends	errors	excluding
divided	easiest	enforce	essential	exclusively

excusable	extends	fifteen	forbearance	functions
excuse	extension	fifty*	forced	fund*
executed	extra	figuring	forcefully	funds*
execution	facilitate	file*	forever	funny
executives	facilities	filed	forget	furnish
executory	factions	files	forgot	furnishing
exemplified	factor	filing	formal	furniture
exempt*	factory	filled	formation	fusion
exemption*	facts	finance	formed	fuss
exemptions	fails	financial	formerly	gain
exercise	failure	finding	forming	gained
exhibit	fair	finds	formula	gambling
exist	falling	finish	formulation	garbage
existing	falls	firms	forth	gasoline
exists	false	fit	forty	gentleman
expanded	familiar	fix	forwarded	gifts
expecting	families	fixed	foundation	giving
expects	fault	flexibility	fourteen	glue
expenditure	favorable	flight	fractions	goes
expense*	feature	flow	fraternal	golf
expenses*	features	flying	freely	goodbye
explain	fee	fog	freight	goodness
explained	feelings	foggy	frequency	goods
explored	fees*	follow	frequently	gotten
express	fell	follows	Friday	governing
expressed	fellow	foodmart	friendly	grain
extended	fiberglass	foolish	fully	granted

grants	holds	improper	inns	inventories
grocer	holiday	incapacity	inquiring	inventory*
grocery	hoping	incidence	insolvency	invert
gross*	hospitals	included	inspect	invest
grosses	hotels	includes	inspection	invested
grounds	hourly	incomes	installment	investigate
grown	housecleaning	incorporate	instance	investment*
guarantee	housing	increases	instances	invisible
guarantees	hundreds	incurred	institution	invitation
guard	hundredths	incurring	instruction	invite
guess	hurry	indicate	instructor	invited
guilty	hurt	indicates	instrument	invitees
handle	identical	indirectly	insufficient	invoice
handshake	idiots	indispensable	insurance	invoices
hang	illegal	inefficient	insured	involve
happens	illness	inevitably	intangible	involves
hay	illustrate	infant	intended	involving
headache	illustrating	infants	intent	irrevocable
hearing	immediately	influenced	intercede	issued
heirs	immunities	inherent	interesting	issues
helpful	impartial	inherit	internal	issuing
helps	implied	initial	interpret	item*
hence	implies	initiative	interstate	items
highest	importantly	injuries	intramural	January
hint	imposed	injury	intrastate	jobs
holder	impossible	inn	introduce	join
holding	impression	inner	introduced	joint*

journal	lawyer	liable*	lose	marketing
judgement	laying	license	loss	markup
July	layovers	licensed	losses	markups
June	leads	lifetime	lowest	match
juries	leagues	lights	lucky	matches
juror	lean	liking	lumber	matching
jurors	learns	limit	lunch	materials
jury	leased	linseed	machine	meant
keeping	leases	liquid	magic	meetings
kerosene	leather	liquidation	mail	membership
key	leaves	listed	maintain	memo
keypunched	leaving	listen	maintained	memorial
kids	ledger	listening	maintaining	mental
kinds	legal*	listing	maintains*	mentality
knock	legally	lists	majority	mentioned
knowing	legibly	literally	managed	merchandise
knows	legislation	literary	management	merchants
label	legislative	litigation	managerial	mere
lag	legitimate	loan	managers	mergers
laid	lender	loaned	manifests	mess
landlord	lending	loaning	manual	messed
lately	lessee	lobby	manually	minds
latent	lesson	located	manufacture	mine
laundry	lessons	location	mark	minimum
lawful	levied	lodging	markdown	minimums
laws	liabilities	log	markdowns	minute
lawsuit	liability*	logically	marked	misconduct

misleading
misnumbered
misrepresent
missed
missing
mixed
modification
modified
monasteries
monthly*
mood
motel
motels
motive
mounting
multiple
multiplication
multiplied
multiplies
multiply
multiplying
murder
mutual
named
names
naphtha
necessarily
necessitate
necessity
needless
negative
negligence
neighborhood
net*
newspaper
nice
nickel
nine*
nineteen
ninety
ninth
noise
non
nonexempt
nonexistence
nonprofit
noon
normally
notation
notations
noted
notes
notice
notices
notifies
notify
null
numbering
numerator
numerators
nursery
object
objection
objective
objectives
obligated
obligation
observance
obtain
obvious
occasional
occupation
offer*
offered
offeree
offeror
officer
officers
offices
official
officials
oil
omisaion
omits
operate
operated
operates
operating
operational
operations
operators
opposing
opposite
option
oral
orders
ordinarily
ordinary
ordinates
organize
organized
organization*
original
ostensible
otherwise
ounce
outcome
outlined
outstanding
overdraw
overhead
overtime
owe
owed
owned
owner
owners*
ownership
owning
owns
o'clock
pack
package
packaging
packing
page
paint
papers
paraffin
paragraph
pardon
parent
parking
parochial
partial

partially*
participant
participate
parties
partner*
partners*
partnership*
pass
passbook
pat
patrons
payable
paying
payment*
payments*
payor
payroll*
payrolls
pays
pending
pension
pensions
percent*
percentage*
perform
performed
performer
performing
performs
peril
periodic
periodical
periods
permanence
permanent
permission
permits
permitted
perpetual
personally
pertains
petition
petty
philanthropist
phrase
physically
pick
picked
pieces
pink
places
placing
planes
planned
plays
please
pledging
plenty
plus
pockets
pointed
policies
porter
portion
positive
possibility
post
posted
posts
potential
pound
practice
preceding
predominate
preferred
prejudice
premises
premium
prepaid
preparation
prepare
prepared
prepares*
preparing
prepayed
prepaying
prerequisite
presence
presentation
presented
preserved
presumed
prevailing
prevent
previous
previously
prices
pricing
primarily
primary
principal*
principals
principles
prior
privileges
procedure
procedures
proceeds
processed
processing
produce
produced
product
proficience
profit*
profitable
profitably
profits
project
projected
projecting
projection
projects
promise
promises
promising
promissory
promoter
promoters
promotes
promotional
proof
proper
properly
properties

proposed
proprietor*
prospect
prospectus
protected
protection
protest
proverbial
provides
provision
provisions
prudent
psychological
punch
purchase*
purchased*
purchaser
purchases
pruchasing
puraly
purports
purposes*
pursuant
pursued
putting
qualification
qualify
quantity
quarter
quarterly*
quarters
questionable
quick
quiz
quizzes
radios
raffles
raise
random
rapidly
rates
ratification
ratified
ratify
ratio
raw
readily
reasonable*
reasonably
receipt
receipts*
receivable
receive
receives*
receiving
recognize
recognized
recommend
recommended
reconciles
recorded
recorder
recording
records
recover
recovery
recreation
rectify
reduce
reduced
reducing
refer
referred
refers
refund
regard
regarding
regardless
regional
register
registered
registration
regular
regularly
regulate
regulated
regulating
regulation
reimbursed
reimbursement
reinstate
rejection
related*
relating
relation
relationship
relative
relatively
relay
relevant
relief
remain
remaining
remains
remedy
remits
remittance
remitted
remitting
remodeled
remunerating
render
rental
renting
rents
reorganization
replied
reply
reporting
reports*
represent
representative
reputed
request*
requested
requests*
require
requirement
requires
requiring
requisition
resale
rescinded
resell
reserve

residence	reversed	satisfy	separate*	signed
resident	reversing	Saturday	separately	significant
resolving	review	save	September	signing
resources	reviewed	saved	seriously	silly
respective	reviews	saver	serves	similarly
responsible	revolving	saving	settlement	simplest
restrict	rid	savings	seventy	singer
restricted	rights	schedule	share	sit
restriction	ring	scientific	shared	situations
restricts	risk	scope	shareholder	sixteen
resulting	risks	scrapped	shares*	sixty
retail	role	secondary	sharing	skill
retailer	roles	secret	sheet*	skillfully
retailers	rolls	securities	sheets	skills
retailing	rooms	security	shelves	skipping
retails	rose	sees	shift	sky
retained	round	seized	shipments	slow
retains	rule	seldom	shipped	smart
retention	rules	select	shipping	snow
retired	rulings	selected	shop	snowing
retiring	runs	sell*	shops	snows
returns	rush	seller	showing	sold*
revealing	safe	selling*	shows	sole
revenue*	salaried	sells	sick	solution
revenues*	salaries	semimonthly	sign	solve
reversals	salary	send	signals	somebody
reverse	sale*	sends	signature	somehow

someone
sometime
sorry
sought
sounds
sources
speaking
specialize
specials
specifically
specified
speed
spell
spells
spent
stable
stack
statement
standards
stands
stare
starts
stated
statements*
stating
status
statutes
stereo
stick
stipulate
stipulated
stipulation
stockholder*
stocks
store
stores
strictly
strip
stonger
structure
structrues
stub
stuff
style
subcaption
subchapter
subjects
submits
subscription
subsidiary
substantial
subtotal
subtract
subtracted
subtracting
subtraction
success
successful
sue
sued
suffered
sufficient
suitable
sum
summoned
sums
Sunday
sundries
supermarket
supervision
supervisor
supplier
supply
supplying
supported
suppose
supposed
supreme
surfaced
survey
sweater
swimming
switch
tabs
takes
talent
talents
talked
talking
tangible
tape
tasks
taxability
taxable*
taxation
taxed
taxes*
taxpayer
teach
technically
technique
telephone
teller
tells
temporary
tenancy
tenant
tend
tended
tens
tentative
term
termed
terminate
terminated
terminates
thank
thanks
thereafter
thereof
thereon
thinks
thirteen
thirtieth
thirty*
thorough
thousand
thousands
threw
throw
Thursday
tie
timing
tires
tomorrow

tonight
tons
tool
totally
touch
tourist
traded
tradein
trailer
transact
transaction
transfer
transferred
transferring
transfers
transit
transmittant
transported
transposing
travel
tribes
trick
truck
truly
trust
trustee
trustees
trusts
tryout
Tuesday
tuition
turning
twelve
twenty*
typically
unaffected
unanimous
unanticipate
unattracting
unchanged
unclean
unconstitutional
underlying
understand
undertake
undesirable
unemployment
unenforceable
unfilled
uniform
unilateral
unions
unique
units
unknowingly
unknown
unless
unlike
unnecessary
unpaid
unrelated
untrue
unused
update
useful
uses
utilities
utilizes
valid
valuable
valuation
valued
variation
varies
variety
vary
verbal
verdicts
vertical
vested
vinyl
violating
violation
virtually
void
voluntarily
voting
voucher
vouchers
wages*
wait
waived
waking
walk
wanton
wants
warranty
watch
wealth
wear
Wednesday
weekdays
weekly
weight
weird
whenever
whereas
wherever
whichever
wholly
widely
willful
willing
win
withdrawal
withdrawn
withheld
withholding
won
wondering
workers
worksheet
worksheets
worth
worthwhile
writer
writes
wrongdoer
yearly
yesterday
yours
yourself
zero

APPENDIX B

HIGHEST FREQUENCY WORD LIST

The 100 words on the following page represented 45% of the words used in all the language sampled. This list is based on the combined oral and written language samples from all occupations studied. It shows the words used most frequently by adults in the ten jobs studied and in the vocational training programs corresponding to those jobs.

Total Words	=	180,000
Total Different Words	=	9,000

the	will	your	see
of	one	was	more
to	not	get	these
and	an	has	into
a	there	must	just
is	can	any	them
in	when	he	down
it	out	got	time
for	we	know	about
that	which	then	been
you	what	don't	some
be	do	each	business
or	up	air	how
on	pressure	check	its
are	two	that's	back
I	so	but	over
this	they	system	work
with	here	through	would
as	other	valve	temperature
by	ok	going	same
if	right	well	also
have	no	use	where
all	used	than	now
at	may	it's	only
from	should	go	like

APPENDIX C

SUMMARY OF OCCUPATIONAL LITERACY REQUIREMENTS

This appendix presents a brief summary of the literacy requirements for all ten occupations studied.

SUMMARY OF OCCUPATIONAL LITERACY REQUIREMENTS

	On The Job		Training Program	
	Reading	Mathematics	Reading	Mathematics
Account Clerk	College to college graduate level	addition, subtraction, multiplication, division, decimals, fractions, business machines	11th grade to college graduate	addition, subtraction, multiplication, division, fractions, decimals. algebra
Automotive Mechanic	9th to college graduate level	basic processes, decimals, fractions, measurement	9th to college graduate level	basic processes, decimals, fractions, measurement
Draftsman	10th grade to college graduate	basic processes, through geometry, algebra, trigonometry	9th grade to college level	basic processes, through geometry, algebra, trigonometry
Electrician	college to college graduate level	basic processes, throguh geometry, algebra, trigonometry	10th grade to college graduate level	basic processes, through geometry, algebra, trigonometry
Heating and Air conditioning Mechanic	10th grade to college graduate level	basic processes, decimals, fractions, measurement, algebra	11th grade to college graduate level	basic processes, fractions, decimals, measurement
Industrial Maintenance Mechanic	10th grade to college graduate level	basic processes through trigonometry	10th grade to college graduate level	basic processes, decimals, fractions, measurement
Licensed Practical Nurse	10th grade to college level	addition, and subtraction--more necessary to dispense medication	12th grade to college graduate level	addition and subtraction
Machine Tool Operator	9th to college graduate	basic processes, decimals, measurement	9th grade to college level	basic processes, decimals, measurement
Secretary	College to college graduate level	basic processes, decimals, fractions, business machines	10th grade to college level	basic processes, decimals, business machines
Welder	few materials--reading of single word information required	basic processes, fractions, decimals, measurement	8th grade to college graduate level	basic processes, fractions, decimals, measurement, algebra